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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Maurizio Galimberti

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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP

901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER

ORLANDO, MICHAEL N

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/536,831	Applicant(s) GALIMBERTI ET AL.	
	Examiner MICHAEL N. ORLANDO	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 58-114 is/are pending in the application.
- 4a) Of the above claim(s) 70-95 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 58-69 and 96-114 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/31/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of group 1 (i.e. claim 69) in the reply filed on May 21st, 2008 is acknowledged. The traversal is on the ground(s) that the claims should be examined unless there is a serious burden on the examiner. This is not found persuasive because the examiner sets forth that each of the groups are drawn to separate and specific compositions and prior art that is found to be relevant to one of the compositions would not necessarily be relevant to the others and therefore due to the necessity for a divergent search in addressing each of the particular groups a significant burden is present.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 70-95 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on May 21st, 2008.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 58-67, 96-98, 100-103, 105-110 and 112-114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caretta et al. (US 2001/0042586 A1) in view of Takeyama et al. (US 6,334,919 B1) and Schaal (US 6,482,884 B1).

Regarding claim 58-60, Caretta discloses a method of producing a tire whereby an elastomeric material is fed from a dispensing organ (discloses as an extruder; [0022]) as a continuous elongated element and deposited on a toroidal support in a plurality of coils to define the tire component (i.e. the structural element of the tire) ([0001]-[0002]).

Caretta fails to teach extruding at the specific shear rate and adding viscosity reducing additives to the elastomeric composition.

Takeyama, drawn also to tire production, discloses processing conditions that involve a shear rate in the range of $1000-7500\text{sec}^{-1}$ (column 9, lines 40-42). It would have been obvious for one having ordinary skill in the art to have used such processing conditions (i.e. high shear rates) in view of Takeyama because it was known that using such a high shear rate in the process of kneading and extruding involves proper mixing of the additive components (column 9, lines 16-24). Also, such is equally an obvious modification due to the fact that such is from the same field of endeavor and therefore applicable under the first prong of In re Wood.

Schaal, drawn to rubber compositions useful in the production of tires, discloses adding small inorganic compounds to the rubber composition to lower the viscosity (column 4, lines 45-58). It would have been obvious for one having ordinary skill in the art at the time of the invention to have included small organic compounds for lowering the viscosity of a rubber composition used to make tires in view of Schaal because such was known to offer improved processability as well as improved resistance against the decay of processability during storage (column 3, lines 35-45). As to the additives specifically reducing the elongational viscosity, the examiner submits that the additives of Schaal are doing just that because even Schaal appreciates that decreases in Mooney viscosity alone are not advantageous and do nothing to cure the deficiencies of storage temperature dependence (column 3, lines 1-5) as the viscosity reducing additives of Schaal have are able to do. As to the specific reduction in viscosity at a

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temperature of 120.degrees.C the examiner notes that such is merely an optimization of the amount of viscosity reducer being added (more additive relates to more of a decrease in viscosity to a reasonable point). The courts have held that generally, differences in concentration or temperature (in this case concentration of additive) will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 61-63, the support of Caretta is toroidal and rotating ([0001]) and as can be seen from the figure it is rigid (see figure 3, reference 3).

Regarding claims 64 and 65, Caretta fails to explicitly teach said draw ratio; however, such is merely an artifact of both the extrudability of the rubber composition (which is known to have been increased in view of Schaal) and optimization of extrusion parameters. It would have been within the purview of an ordinary skilled artisan at the time of the invention to have tailored the extrusion parameters as desired to obtain proper deposition of the composition onto the support.

Regarding claims 66 and 67, the method of claim 58 is taught above and Takeyama provides the utilization of shear rates in the range of $1000-7500\text{sec}^{-1}$, which substantially encompasses even the most specific range claimed of $4000-6000\text{sec}^{-1}$. Although the specific range is not explicitly set forth by Takeyama, such would have been an obvious range because the courts have held that where the claimed ranges

"overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Regarding claims 96 and 97, Schaal further teaches that the viscosity reducing compounds are adding to the rubber compositions in an amount of preferably 0.5-6 phr (column 14, lines 60-63). Although the specific range is not explicitly set forth by Takeyama, such would have been an obvious range because the courts have held that where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Regarding claim 98 and 100, the elastomer composition of Schaal may utilize polybutadiene (column 15, lines 4-30). It would have been obvious to have utilized the specific elastomer composition of Schaal (including the organic viscosity reducers provided above) because such was known to be a reinforced rubber composition for use in tire production that offers numerous advantages such as improved processability and storage stability (column 1, lines 10-14).

Regarding claims 101 and 102, Schaal provides EPDM as a suitable rubber choice (column 15, line 19).

Regarding claims 103 and 105, Schaal discloses silica and carbon black as suitable fillers (column 15, lines 54-55). In the working examples Schaal provides silica in the amount of 60 phr (table 1). Regarding claims 107-110 and 112-114, all of the limitations have been addressed above.

Regarding claim 106, Schaal also provides a coupling system for the silica (i.e. a coupling agent) (column 15, line 37).

7. Claims 68 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caretta et al. (US 2001/0042586 A1), Takeyama et al. (US 6,334,919 B1) and Schaal (US 6,482,884 B1), as applied to claim 58 above, further in view of Wittenwyler (US 3,865,777).

Regarding claims 68 and 69, Schaal does not teach the specific glycidyl ester compositions as presented in the claims, but teaches substantially similar compositions (column 8, line 40; column 13, line 20), which are small and contain both glycidyl and ester groups (i.e. they are glycidyl esters). It is impossible for the Schaal reference to list every possible small glycidyl ester that would have been suitable for lowering the viscosity and improving storage stability; however, an ordinary skilled artisan armed with the teachings of Schaal would have appreciated that other small glycidyl esters would have had a reasonable expectation of performing a similar function especially those that are already known in the art as being suitable viscosity reducers in addition to already being substantially similar to those of Schaal.

Wittenwyler, drawn to polyepoxide compositions, discloses the use of the presently claimed glycidyl ester for the purpose of reducing the viscosity (column 5 line 38 – column 6, line 5). It is noted that the acid component can consist of two propyl groups and a hydrogen and therefore will fall in the range of 6-22 carbon atoms.

It would have been obvious to an ordinary skilled artisan at the time of the invention armed with the knowledge of Schaal to recognize that similarly structured

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small glycidyl esters to those of Schaal would have been able to perform a similar function and increasing obvious if said analogues are already characterized in the art as being known viscosity reducers. Further in regard to the abovementioned, it would have been obvious to one having ordinary skill in the art at the time of the invention to have utilized the glycidyl ester of Wittenwyler for the purpose of reducing the viscosity of Schaal's rubber composition with predictable success. Though Wittenwyler is drawn to a different field of endeavor the reference is pertinent to the applicant's particular problem, which is achieving an adequate decrease in viscosity and given that one of ordinary skill would have appreciated the full invention of Schaal it would have been reasonable to look to the teachings of Wittenwyler for viscosity reducers of similar chemical make-up that would also have been useable.

8. Claims 99, 104 and 111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caretta et al. (US 2001/0042586 A1), Takeyama et al. (US 6,334,919 B1) and Schaal (US 6,482,884 B1), as applied to claims 98 and 107 above, further in view of Sandstrom et al. (US 5,216,066).

Regarding claims 99 and 111, as seen above Schaal provides a host of suitable rubbers many of which would reasonably have an inherent glass transition temperature below 20.degrees.C, though further proof of such is provided below. It is further noted that Schaal appreciates blends of synthetic and natural rubbers (column 15, lines 4-7).

Sandstrom provides that a Tg value below -50.degrees.C is defined as a low Tg rubber (column 2, lines 9-10) and Sandstrom offers the use of such in the rubber composition at varying concentrations (column 2, lines 33-41).

It would have been obvious for one having ordinary skill in the art at the time of the invention to have included a blend of rubbers including some with low Tg values (i.e. below -50.degrees.C)in view of Sandstrom because such were known to have imparted advantageous properties to the blended rubber such as low rolling resistance and good wear resistance (column 8, lines 36-46).

Regarding claims 104, Schaal discloses silica and carbon black as suitable fillers (column 15, lines 54-55). In the working examples Schaal provides silica in the amount of 60 phr (table 1). Although no specific example is given for carbon black, which was appreciated as an alternative reinforcing filler it would have been an obvious choice to substitute one known reinforcing filler (carbon black) for another (silica) at similar concentrations. The courts have held that generally, differences in concentration or temperature (in this case concentration of the reinforcing filler) will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. Also it is noted that Sandstrom appreciates the preferable range for carbon black as 50-60 phr (i.e. further strengthening the examiner's argument that it would have been obvious to use a similar amount of carbon black to the amount of silica if substituted) (See Sandstrom; column 7, lines 40-48).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The examiner notes that Galimberti et al. (WO 02/083433 A1), though not relied upon, is also highly pertinent to the present invention. Galimberti provides similar viscosity reducers, the use of carbon black and silica as reinforcing fillers, and utilizes a preferred diene which has a Tg of preferably below 20.degrees.C..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL N. ORLANDO whose telephone number is (571)270-5038. The examiner can normally be reached on Monday-Thursday, 7:30am-4:30pm, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MO

/Philip C Tucker/

Supervisory Patent Examiner, Art Unit 1791